

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:
a semiconductor element;
a circuit tape having a circuit layer;
external terminals for electrically connecting the circuit tape to a mounting substrate; and
an adhesive film for adhering said circuit tape to said semiconductor element such that the circuit tape is insulated from the semiconductor element, wherein
said circuit layer is electrically connected to a pad of said semiconductor element and to said external terminals, and
said adhesive film is porous.
2. A semiconductor device as claimed in claim 1, wherein said adhesive film includes a three-layer structure having a porous support layer and two adhesive layers which are respectively applied onto both sides of said porous support layer.
3. A semiconductor device as claimed in claim 1, wherein said adhesive film has a structure of an adhesive agent impregnated into a porous support layer.
4. A semiconductor device as claimed in claim 1, wherein said circuit layer of said circuit tape is

electrically connected to said pad of said semiconductor element by a wire bonding.

5. A semiconductor device as claimed in claim 1, wherein the porous adhesive film includes a material selected from the group consisting of polyimide, epoxy, polyethylene terephthalate, cellulose, acetate, and fluorine-containing polymer.

6. A semiconductor device as claimed in claim 1, wherein the porous adhesive film includes a porous polytetrafluoroethylene layer, both sides of which have had bismaleimide-triazine resin applied thereto.

7. A semiconductor device comprising:
a semiconductor element;
a circuit tape having a circuit layer on a dielectric film;
an adhesive film, positioned between said semiconductor element and said circuit tape, for operating as a stress relaxing layer for relaxing thermal stress; and
external terminals for electrically connecting the circuit tape to a mounting substrate, wherein
said adhesive film comprises a porous support,
a plane having pads of said semiconductor element is adhered to said circuit tape by said adhesive film such that the circuit tape is insulated from the semiconductor element, connecting leads on said circuit tape are

electrically connected to said pads on said semiconductor element, and

said external terminals for connecting to said mounting substrate are formed on said circuit tape.

8. A semiconductor device as claimed in claim 7, wherein said adhesive film has a structure of an adhesive agent impregnated into a porous support layer.

9. A semiconductor device as claimed in claim 7, wherein said adhesive film includes a three-layer structure having a porous support layer and two adhesive layers which are respectively applied onto both sides of said porous support layer.

10. A semiconductor device as claimed in claim 7, wherein a portion of each of said pads of said semiconductor element connecting to said circuit layer of said circuit tape is sealed with an insulating material.

11. A semiconductor device as claimed in claim 10, wherein said insulating material is an epoxy material.

12. A semiconductor device comprising:
a semiconductor element;
a circuit tape having a circuit layer on a dielectric film;
an adhesive film positioned between said

semiconductor element and said circuit tape for operating as a stress relaxing layer for relaxing thermal stress; and

external terminals for electrically connecting the circuit tape to a mounting substrate, wherein

pads are arranged at one of a middle and a periphery of said semiconductor element,

said adhesive film comprises a porous support,

said circuit layer is connected to a plane having said pads of said semiconductor element via said adhesive film such that said circuit layer is insulated from the semiconductor element,

connecting leads on said circuit tape are connected to said pads of said semiconductor element, and

external terminals for electrically connecting the circuit tape to a mounting substrate are formed on said circuit tape.

13. A semiconductor device as claimed in claim 12, wherein said external terminals for electrically connecting the circuit tape to said mounting substrate are formed at a bottom side of said semiconductor element.

14. A semiconductor device as claimed in claim 12, wherein said external terminals for electrically connecting the circuit tape to said mounting substrate are formed at an exterior side of said semiconductor element.

15. A semiconductor device as claimed in claim 12,

wherein said external terminals for electrically connecting the circuit tape to said mounting substrate are formed at a respective one of a bottom side and an exterior side of said semiconductor element.

16. A semiconductor device as claimed in claim 12, wherein a portion of each of said pads of said semiconductor element connecting to said circuit layer is sealed with an insulating material.

17. A semiconductor device comprising:

- a semiconductor element;
- a circuit tape having a circuit layer on a dielectric film;
- an adhesive film for connecting said semiconductor element to said circuit tape such that the circuit tape is insulated from the semiconductor element;
- external terminals for electrically connecting the circuit tape to a mounting substrate; and
- an outer frame covering planes of said semiconductor element except one plane, wherein
 - plural pads are provided at a periphery of said semiconductor element which is not covered with said outer frame, the plural pads being provided in a plane,
 - said circuit tape is connected to the plane having said pads of the semiconductor element and to said outer frame at an outer side of the plane having said pads, by said adhesive film,

said adhesive film comprises a porous support,
said circuit layer of said circuit tape is
electrically connected to said plural pads of said
semiconductor element,

a portion of each of said pads of said semiconductor
element electrically connecting to said circuit layer is
sealed with an insulating material, and

said plural external terminals for electrically
connecting the circuit tape to said mounting substrate are
formed on said circuit tape arranged at the outer frame.

18. A semiconductor device comprising:

a semiconductor element;

a circuit tape having a circuit layer on a
dielectric film;

an adhesive film for connecting said semiconductor
element to said circuit tape such that the circuit tape is
insulated from the semiconductor element;

external terminals for electrically connecting the
circuit tape to a mounting substrate; and

an outer frame covering planes of said semiconductor
element except one plane, wherein

plural pads are provided at a periphery of said
semiconductor element which is not covered with said outer
frame, the plural pads being provided in a plane,

said circuit tape is connected to the plane having
said pads of the semiconductor element and to said outer frame
at an outer side of the plane having said pads, by said

adhesive film,

said adhesive film comprises a porous support,

said circuit layer of said circuit tape is electrically connected to said plural pads of said semiconductor element,

a portion of each of said pads of said semiconductor element electrically connecting to said circuit layer is sealed with an insulating material, and

said plural external terminals for electrically connecting the circuit tape to said mounting substrate are formed on said circuit tape arranged both at the outer frame and at the semiconductor element.